

Application Serial No. 10/763,655  
Reply to Office Action of December 14, 2005

PATENT  
Docket: CU-3648

Amendments to the Specification

*Please replace the second paragraph starting at line 2 on page 5 with the following amended paragraph:*

According to the present invention, the method for measuring the absorption coefficient and the reduced scattering coefficient of a multiple scattering medium includes: outputting a coherent light beam, the coherent beam including linear polarized P and S wave components having mutually orthogonal polarizations and frequencies  $\omega_P$  and  $\omega_S$ , respectively; splitting the coherent light beam into a signal beam and a reference beam, the signal beam and the reference beam including the P wave and S wave components, respectively; projecting the signal beam into the multiple scattering medium; detecting and converting an optical interference signal of the reference beam and an optical interference signal of the signal beam that penetrates the multiple scattering medium and a polarizer, respectively, into heterodyne interference electrical signals; comparing the two heterodyne interference electrical signals to obtain amplitude attenuation and phase delay of the signal beam that penetrated the multiple scattering medium; and inferring the reduced scattering coefficient and the absorption coefficient of the multiple scattering medium at a position where the multiple scattering medium is penetrated with reference to the amplitude attenuation and phase delay thus obtained.

*Please replace the abstract with the following amended abstract:*

In a method for measuring absorption and reduced scattering coefficients of a multiple scattering medium, a coherent light beam is outputted. The coherent light beam includes linear polarized P and S wave components having mutually orthogonal polarizations and frequencies  $\omega_P$  and  $\omega_S$ , respectively. Then, the coherent light beam is split into a signal beam and a reference beam, which include the P wave and S wave components, respectively. The signal beam is subsequently projected into the medium. Optical interference signals of the reference beam and the signal beam penetrating the medium are respectively detected and converted

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into heterodyne interference electrical signals. Thereafter, the two heterodyne interference electrical signals are compared to obtain amplitude attenuation and phase delay of the signal beam penetrating the medium, from which the absorption and reduced scattering coefficients of the medium at a position where the signal beam penetrated the medium are inferred.